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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/774,565

02/09/2004

John T. Huston

Case 5887D

8509

7590

08/10/2004

Michael J. Seymour
The Babcock & Wilcox Company - Patent Dept.
20 S. Van Buren Avenue
Barberton, OH 44203

EXAMINER

JAGAN, MIRELLYS

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------|---------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/774,565 | HUSTON ET AL. | |
| | Examiner | Art Unit | |
| | Mirellys Jagan | 2859 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/9/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 16-19 are objected to because of the following informalities:

In claim 16, there is lack of antecedent basis in the claim for “the optical signals” in line 6. Furthermore, it is not clear how the IR radiation generated by the gas is semi-transparent to the gas components (is semi-transparent to itself?), as claimed in lines 6-7. The specification states that the pyrometer is set to detect a particular wavelength that is semi-transparent to at least one gas component in order to detect the temperature of that at least one component (see paragraphs 41-43).

In claim 18, it is not clear what the claim is referring to by the term “trade” in line 2. Furthermore, claim 16 claims that there is a plurality of gas components. Therefore, claim 18 is not clear since it appears to be stating that there is one component (H₂O).

Claims 17 and 19 are objected to for being dependent on objected base claim 16. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 16-19 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01.

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In claim 16, the omitted steps are the steps for measuring the temperature in a furnace. As claimed, claim 16 claims a method for scaling electrical signals, not a method of measuring temperature.

Claims 17-19 are rejected for being dependent on rejected base claim 16.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,142,417 to Cashdollar et al [hereinafter Cashdollar] in view of U.S. Patent 4,780,832 to Shah.

Cashdollar discloses a method of measuring temperature in a furnace (coal-fired burner), the method comprising:

positioning a pyrometer (1) having an optical head (3) in the furnace, the pyrometer's optical head having a line of sight that intersects a passage of gas containing a plurality of gas components in the furnace;

receiving IR radiation from the gas as it passes the line of sight;

converting the radiation in the head to electrical signals; and

scaling the electrical signals to maximize the signals;

wherein the electrical signals are obtained from IR radiation having a wavelength range of about 1.3 to 3.1 microns, the wavelength being about 1.38 (about 2.7) for sensing the

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temperature of H₂O in the gas, and the wavelength being in the range of about 1.8 and 3.1 microns for sensing the temperature of H₂O or CO₂ in the gas (see column 3, lines 3-7 and 16-44; column 3, line 65-column 4, line 9; column 5, lines 40-54; and column 6, lines 41-60).

Cashdollar does not disclose positioning the pyrometer in a port of the furnace.

Shah discloses a pyrometer for measuring the temperature of gas in a furnace (20). The pyrometer is positioned in a port of the furnace such that the pyrometer has a line of sight that intersects a passage of gas containing a plurality of gas components in the furnace for receiving direct IR radiation from the gas as it passes the line of sight to convert the radiation to electrical signals for obtaining a temperature measurement. Shah teaches that it is beneficial to place the pyrometer in a port of a furnace in order to receive direct IR radiation for obtaining real time temperature measurements (see column 4, line 638-47; column 4, lines 11-20).

Referring to claim 16, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method disclosed by Cashdollar by positioning the pyrometer in a port of the furnace, as taught by Shah, in order to receive direct IR radiation from the gas being measured.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents disclose a pyrometer used for measuring the temperature in a furnace:

U.S. Patent 5,051,590 to Kern et al

U.S. Patent 4,411,533 to Loftus et al

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U.S. Patent 4,435,093 to Krause et al

U.S. Patent 3,426,968 to Preisman

U.S. Patent 5,797,682 to Kert et al

U.S. Patent 6,370,486 to Sivathanu

U.S. Patent 4,410,266 to Seider

U.S. Patent 3,911,277 to Cederstrand et al

The following patent discloses a radiation detector used for detecting a gas component:


U.S. Patent 5,612,676 to Plimpton et al

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 9AM to 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ
August 5, 2004


Diego Gutierrez
Supervisory Patent Examiner
Technology Center 2800